

Appl. No. 10/622,244
Amdt. dated 10th Aug. 2007
Reply to Office action of 06-Apr-07

REMARKS/ARGUMENT

Reconsideration Requested of Claim Rejections

Applicants have given careful consideration to the grounds of the examiner in rejection the claims under 35 USC §§102(b) and 103(a). Applicants' claimed subject matter in claim 14, now stands effectively allowed. Applicants' claims 2, 5, 9, 12, and 15–29 have been cancelled hereby for expediency and efficiency of prosecution. All amendments have been made herein to pending claims for purposes of clarification and enjoy full support of applicants' specification, claims, drawings, and abstract as filed; no new matter is included. Each independent claim recites distinguishable features, as does each claim depending therefrom: Applicants respectfully solicit reconsideration the examiner's objections and rejections as each elates to pending claims.

Rejection under 35 USC §102(b) using Brady et al., U.S. Patent N° 5,303,207

Claims 1, 2, 17, 25 stand rejected under 35 USC §102(b) as being anticipated by Brady et al., Patent N° 5,303,207. Please turn to EXHIBIT A depicting features and focus of Brady et al. Applicants' claimed combinations, as amended, are patenably distinct therefrom. A closer look at Brady illustrates just how far the technology discussed therein deviates from the fundamental unique combination of system features/structure and technique, claimed by applicants. There is no need or reason identified or suggested — nor can any practical motivation be found — to combine Brady et al. with any other reference, or any feature that is '*officially noticeable*', to arrive at applicants' unique claimed system and technique. Brady et al. cols. 4, 5, 7 — and elsewhere — explains that network nodes used therein 14a/a'–14e/e' operate as classic network message routing points, while apparently monitoring characteristics of available communications channels, rerouting around failed nodes, and such (Brady, col 5). No sensing is performed by a network node 14 or by Home Station 12, nor is there need to do so. *Rather*, emphasis is placed on the fact that sensing is performed only at the remote sensor stations (also referred to as 'sources') 16a/a'–16c/c', each of which functions to transmit away (highlighted by sketched arrows in the reproduction of FIG. 5, EXHIBIT A) and into the communication network of nodes 14a/a'–14e/e' to bounce around the virtual circuits identified at 15a, 15b.

Claim Rejections under 35 USC § 102 / Anticipation – Legal Summary

As we know: "For a prior art reference to anticipate in terms of 35 U.S.C. §102, *every* element of the claimed invention must be identically shown in a single reference . . . These elements must be arranged as in the claim under review . . .," *In re Bond* (Fed. Cir. 1990). The Federal Circuit has reiterated that "[t]here must be no difference between the claimed invention and the reference disclosure, as viewed by a person of ordinary skill in the field of the invention, [Scripps Clinic & Research Foundation]". A prior art reference anticipates a claim only if the reference discloses, either expressly or inherently, every limitation of the claim. See *Verdegaal*

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Bros., Inc. v. Union Oil Co. (Fed. Cir. 1987). “[A]bsence from the reference of any claimed element negates anticipation.” *Kloster Speedsteel AB v. Crucible, Inc.* (Fed. Cir. 1986). An anticipation rejection under §102 can stand against a pending claim *only* if a single piece of prior art discloses a combination including *each* element of the pending claim such that each prior art element is identical to a corresponding, similar structurally-arranged and operationally substantial equivalent element of the pending claim. This is not the case, here. For reasons enumerated, applicants submit that their independent claims, as well as each dependent claim depending therefrom, include features not disclosed in, and not taught or suggested by any reference cited.

Rejection under 35 USC §103(a) using Brady et al., U.S. Patent N° 5,303,207 and Tubel U.S. Pub N° 2002/0020533

Claims 8-13, 15, 21 and 27 stand rejected under 35 USC §103(a) as being unpatentable over Brady et al., U.S. Patent N° 5,303,207 in view of Tubel U.S. Publication N° 2002/0020533. Applicants remaining claims stand rejected under 35 USC §103(a) over Brady et al., along with certain “official notice” taken by the examiner of various features deemed, inherent and such. Once again, please turn to **EXHIBIT A** pointing out the features and focus of Brady et al. Regarding the published application to Tubel, please turn to **EXHIBIT B**.

As mentioned above: Brady et al. cols. 4, 5, 7 — and elsewhere — explains that network nodes used therein 14a/a’-14e/e’ operate as classic network message routing points, while apparently monitoring characteristics of available communications channels, rerouting around failed nodes, and other such classic network functionalities (Brady, col 5). No sensing is performed by a network node 14 or by Home Station 12, nor is there need to do so. *Rather*, emphasis is placed on the fact that sensing is performed only at the remote sensor stations (also referred to as ‘sources’) 16a/a’-16c/c’, each of which functions to transmit away (highlighted by sketched arrows in Brady, FIG. 5 reproduction, **EXHIBIT A**) and into the communication network of nodes 14a/a’-14e/e’ to bounce around the virtual circuits identified at 15a, 15b.

Tubel, discloses a system for controlling production wells from a remote location. It has a plurality of surface control systems/modules located at each well head and one or more downhole control systems positioned within zones located in each well. Each of the three areas shown function within a respective well to perform downhole monitoring (areas encircled in the FIG. 1 reproduction, **EXHIBIT B**); each downhole area is associated with a remote platform 1 – N, located at the surface of a body of water 16 interconnected by “wells 14 which extend from each platform 12 through water 16 to the surface of the ocean floor 18 and then downwardly into formations under the ocean floor {Tubel, para [0068]}. The surface system 24 associated with

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each platform 12 functions to process information as well as transmit to a transceiver 52 located above water surface. “The downhole control systems 22 will interface to the surface system 24 using a *wireless communication system or through an electrical wire (i.e., hardwired) connection*. The downhole systems in the wellbore can transmit and receive data and/or commands to or from the surface and/or to or from other devices in the [respective] borehole {*emphasis added*, Tubel, para [0072]}.”

The Tubel intercommunication mechanism between downhole control 22 to surface system 24, along wells 14, is *wireless communication or electrical wire*. It is *impractical* to suggest that an artisan, after viewing Tubel’s under-the-ocean well control system, would be (obviously) led create applicants’ claimed system. This would take a complete system redesign and feature-restructuring effort, by one faced with a different set of core design constraints. Furthermore, it is impermissible *hindsight* to suggest an artisan would start with a Brady et al system of two types of very distinct devices with different functionalities—namely, network node devices 14a/a’–14e/e’ and sensor stations (‘sources’) 16a/a’–16c/c’—then turn to Tubel for design feature guidance for select features in applicants’ claimed combinations. No mention is made of the unique incorporation of acoustic wave communication structure/features, as claimed by applicants (claim 1):

(b) each respective one of the node assemblies to comprise: a source of power for said respective node assembly; a transducer for receiving acoustic waves transmitted from a different one of the node assemblies while immersed within said liquid environment; acoustic-transducer circuitry for converting said acoustic waves received by said different node assemblies, into signals; a controller adapted for local processing of said signals within said respective node assembly; said transducer further adapted for emitting, for transmission through said liquid environment, sensor information collected about said liquid environment by the sensor element of said respective node assembly

“Section 103 forbids issuance of a patent when ‘the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains.’” *KSR Int’l Co. v. Teleflex Inc.*, 127 S.Ct. 1727, 1734, 82 USPQ2d 1385, 1391 (2007). The Supreme Court continued “[f]ollowing these principles may be more difficult in other cases than it is here because the claimed subject matter may involve more than the simple substitution of one known element for another or the mere application of a known technique to a piece of prior art ready for the improvement.” *Id.* The Court explained, “[o]ften, it will be necessary for a court to look to interrelated teachings of multiple patents; the effects of demands known to the design community or present in the marketplace; and the background knowledge possessed by a person having ordinary skill in the art, all in order to

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determine whether there was an apparent reason to combine the known elements in the fashion claimed by the patent at issue.” *Id.* at 1740-41, 82 USPQ2d at 1396. The Court noted that “[t]o facilitate review, this analysis should be made explicit.” *Id.*, citing *In re Kahn*, 441 F.3d 977, 988, 78 USPQ2d 1329, 1336 (Fed. Cir. 2006) (“[R]ejections on obviousness grounds cannot be sustained by mere conclusory statements; instead, there must be some articulated reasoning with some rational underpinning to support the legal conclusion of obviousness”).

Here, it is *not* a case of a substitution of one element—for instance, a mechanical actuator device replaced by a processor-driven device to perform the same function—as was the case set out by the Federal Circuit where it concluded, upon application of *KSR Int'l Co. v. Teleflex Inc.*, 127 S.Ct. 1727 (2007) that it would have been obvious to combine (1) a mechanical device for actuating a phonograph to play back sounds associated with a letter in a word on a puzzle piece with (2) an electronic, processor-driven device capable of playing the sound associated with a first letter of a word in a book. See *Leapfrog Ent., Inc. v. Fisher-Price, Inc.*, 485 F.3d 1157, 1161, 82 USPQ2d 1687, 1690-91 (Fed. Cir. 2007) (“[a]ccommodating a prior art mechanical device that accomplishes [a desired] goal to modern electronics would have been reasonably obvious to one of ordinary skill in designing children's learning devices”). But rather, the applicants hereof have designed a unique and complex network of multi-functional sensing node assemblies, having been faced with complex and unordinary design issues associated with sensing within in a liquid environment.

Summary/Conclusion and Request for Reconsideration

With both Brady et al. and the Tubel published application **silent** as to core claimed features, and not only can no suggestion or teaching be found to modify or to combine either reference with any other that has been identified as applicable—it would be impractical to assert so. The solution focus of each reference is different than that contemplated by the applicants. As such, applicants' claims, as amended, are patentable and overcome the §102 and §103 rejections. Each reference stops short of appreciation to arrive at the innovation claimed in applicants' independent claims. And, although each dependent claim depending from an independent claim containing patentable subject matter is also considered patentably distinct by way of including features of a respective patentable independent claim, applicants' dependent claims include further unique limitations. Nothing can be found in the references to lead an artisan to try to combine, and nothing indicates any need to do so. Favorable reconsideration is respectfully solicited.

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Please do not hesitate to call the undersigned, as a call would be most-welcomed to address any issues the examiner deems outstanding; thus, efficiently move prosecution forward.

Respectfully submitted 10th day August 2007



Macheleldt Bales & Heidmiller LLP
Jean M. Macheleldt
Attorney for Assignee/Applicants
Reg. № 33,956
Phone: (970) 218-6798

enclosure(s): one-page explanatory EXHIBIT A
 one-page explanatory EXHIBIT B

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EXHIBIT A

Brady et al. Pat. N° 5,303,207 FIG. 5 and portions of cols. 4 – 5 are reproduced immediately below:

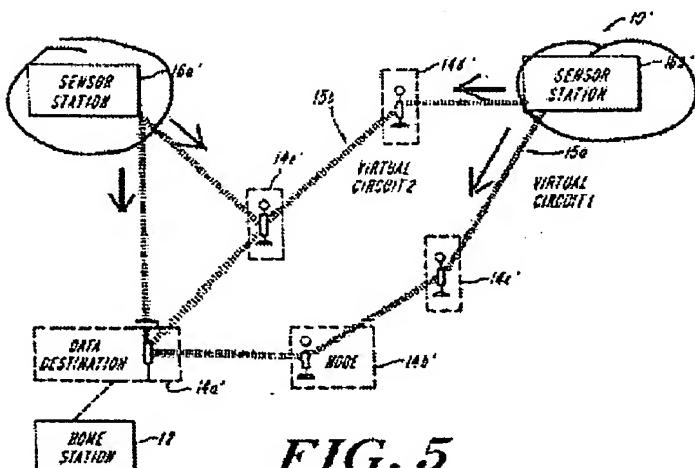


FIG. 5

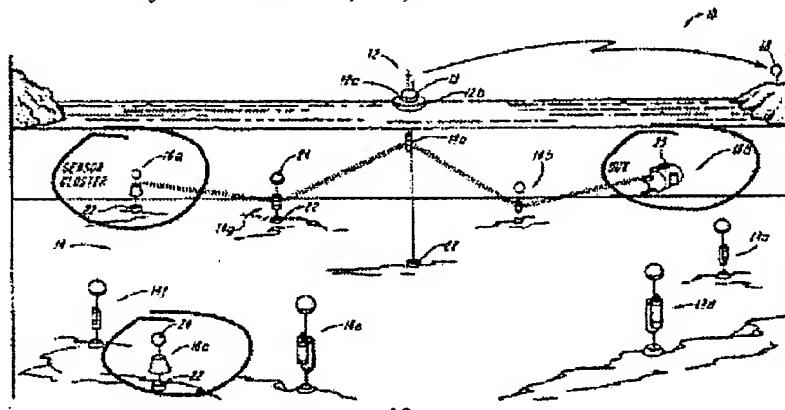
Brady et al. cols. 4, 5, 7 explain that nodes 14a/a'–14e/e' operate as classic network message routing points and monitor channel characteristics. No sensing is performed by a network node 14 or by Home Station 12. *Rather*, sensing is performed only at the remote sensor stations/sources, 16a/a'–16c/c', which only transmit away from source 16 and into the communication network of nodes 14a/a'–14e/e' to bounce around virtual circuits 15a, 15b.

A plurality of sensor stations 16a–16c generally denoted 16, each provided having coupled thereto a sensor (not shown) and an acoustic modem (not shown) are disposed in a region about the ALAN system 10. Sensor stations 16a and 16c are tethered via a line 2 to an anchor 23 and thus held in a substantially fixed location. A flotation device 24 maintains the sensor stations 16a, 16c in a predetermined position. The sensor station 16b is here disposed on a so-called untethered underwater roving vehicle 23 (UUV) which may travel throughout the region in which the ALAN system 10 is disposed. Here, the vehicle 23 is unmanned, alternatively the vehicle may be a manned vehicle or may be a marine animal or inhabitant of the water environment in which the ALAN system is deployed.

As will be described further in conjunction with FIG. 4 below, when the underwater acoustic local area network 10 is disposed in a shallow water environment, the network may utilize a so-called multi-hop protocol in which signals may be transmitted from one of the plurality of sensor stations 16 to a first one of the plurality of network nodes 14 and subsequently to a destination 10 such as the home station 12 for example.

Each of the network nodes 14 adaptively monitors the characteristics of each communication channel and maintains a real time measure of environmental conditions. Furthermore each of the network nodes 14 are capable of adaptively routing messages through a selected one of a plurality of communication paths. Such a selection may be made for example according to the transmission characteristics of the communication channels at a particular point in time.

Brady et al. Pat. N° 5,303,207 FIG. 1

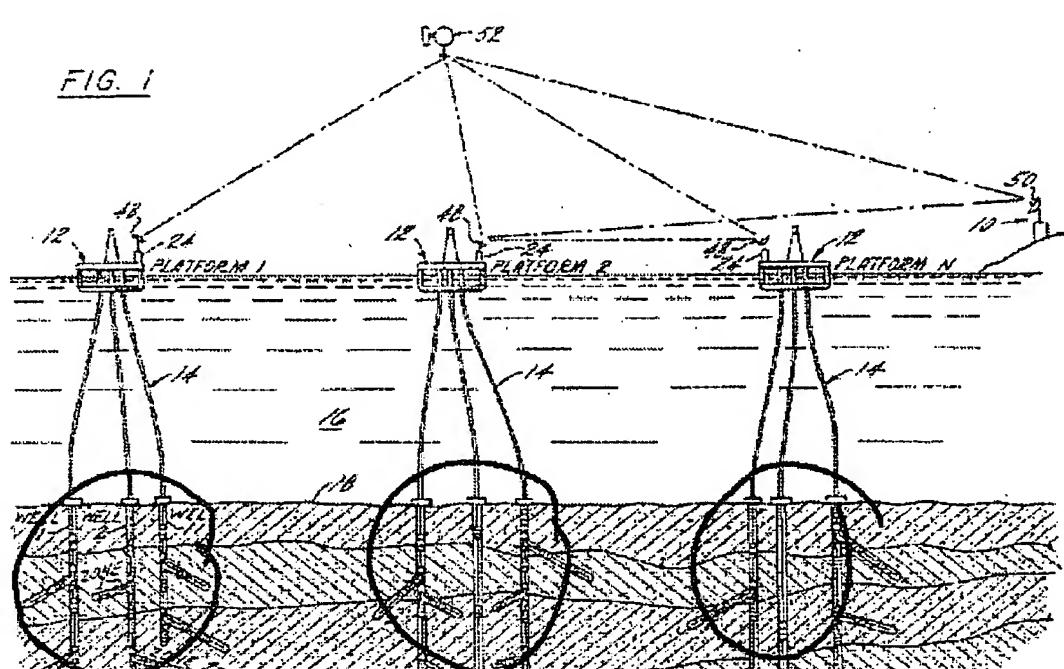


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EXHIBIT B

Tubel, Pub. N°. US2002/0020533A1, FIG. 1, see also *para [0066]*, discloses a system that incorporates three areas for performing downhole sensing (encircled) that function within wells, each area is associated with a remote platform 1 – N located at the surface of body of water 16. Each platform has a surface system 24 that functions to process information from downhole areas and on to transceiver 52.



Patent Application Publication
 14th, 21, 2002 Sheet 1 of 17 US 2002

Tubel, Pub. N°. US2002/0020533A1 explains:

[0108] The downhole sensors associated with flow sensors 56 and formation evaluations sensors 58 may include, but are not limited to, sensors for sensing pressure, flow, temperature, oil/water content, geological formation, gamma ray detectors and formation evaluation sensors which utilize acoustic, nuclear, resistivity and electromagnetic technology. It will be appreciated that typically, the pressure, flow, temperature and fluid/gas content sensors will be used for monitoring the production of hydrocarbons while the formation evaluation sensors will measure, among other things, the movement of hydrocarbons and water in the formation. The downhole computer (processor 50) may automatically execute instructions for actuating electromechanical drivers 60 or other electronic control apparatus 62. In turn, the electromechanical driver 60 will actuate an electromechanical device for controlling a downhole tool such as a slotted sleeve, shut off device, valve, variable choke, penetrator, perf valve or gas lift tool. As mentioned, downhole computer 50 may also control other electronic control apparatus such as apparatus that may effect flow characteristics of the fluids in the well.

[0109] In addition, downhole computer 50 is capable of recording downhole data acquired by flow sensors 56, formation evaluation sensors 58 and electromechanical position sensors 59. This downhole data is recorded in recorder 66. Information stored in recorder 66 may either be retrieved from the surface at some later date when the control system is brought to the surface or data in the recorder may be sent to the transceiver system 52 and then communicated to the surface.

[0110] The borehole transceiver/receiver 52 transfers data from downhole to the surface and receives commands and data from the surface and between other downhole modules. Transceiver assembly 52 may consist of any known and suitable transceiver mechanism and preferably includes a device that can be used to transmit as well as to receive the data in a half duplex communication mode, such as an acoustic piezoelectric device (i.e., disclosed in aforementioned U.S. Pat. No. 5,222,149), or individual receivers such as accelerometers for full duplex communications where data can be transmitted and received by the downhole tools simultaneously. Electronics drivers may be used to control the electric power delivered to the transceiver during data transmission.